Architecture between applicational and virtual space

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Abstract

Architecture was often a field used for the verification of new technological possibilities (innovations) which inspired man's utopian yearning. This yearning can be classified into "external" and "internal". External yearning is the desire for flight through the endless space of the universe; internal yearning is the desire for immersion into virtual space. Both involve intervening into and manipulating man's environment, transforming it in accordance with the degree and range of technical development (architecture is culture), thereby directly confirming the level of civilisation through the house-city organisation. In the creative anticipatory process, architects are immersed in virtual space, with reality as an afterthought, and are subjected to a particular kind of mental gymnastics in their attempts to project themselves into the position of a future end-user, whereby they are forced to view and analyse their own project through the eyes of this end-user. On a second level of projection, the problem which arises is the balancing of potential reality and the desire for a utopian vision, which the architect does not see literally as a picture, but rather something about which the architect hypothesises as an ideal. However, since architecture is not a phenomenon per se, and since the house-city has served humans as a type of refuge in the face of varying climates and other requirements, the pertinent question is what purpose architecture will serve at a point where a synthetically produced human comes into existence. Today, modern man, with all his physiological traits, is steadily becoming out-dated – an archaic and anachronic being, unadjusted to immersion into virtual space because he still uses gravitational pull and the sun’s traverse across the sky as a means of guidance. It would seem that this is only a temporary act of media domination over reality and nature.

Keywords: virtual, applicational, space, humankind, architecture, city.
1 Fictitious and actual reality

Technology has always had the task of interpreting the application of systematic learning in the production of targeted products and objects. Only in the 1950s was there any mention of it playing a part in the verification of scientific theory. Theoretical knowledge was supposed to transform into a framework which would enable technology to facilitate the bridging of the gap between science (irrespective of which type of science) and technical development.

Architecture is a more complex issue since it is disputable whether it belongs to the field of technical sciences or to the arts, in view of its utilitarian function. Scholars and scientists unwillingly make concessions and tend to relegate it to the realm of “applied arts”, or interpret the theory of architecture under the History of Art and Aesthetics. However, new theoretical research is laying the foundations for an authentic architectonic theory which does not tend towards creating some kind of handbook for the production of syntheses or for the establishment of rules of induction based on which a hypothesis would be generated mechanically.

Another issue is a product of the imprecise terminology used in reality, as well as the “syndrome of inexpressibility” which warns us that a set of signs in one system cannot be applied to another system.

The concept of reality was primarily a philosophical question, but the application of computers has introduced an element of unease into our physical and cultural environment. The question is whether “virtual reality” also includes “fictitious reality”. If virtual reality is not reality, then the logical question is what is actual reality? This can be problematized as a type of illusion as in the case of the man in the desert who sees a Fata Morgana [21]. It is quite natural for human beings to see an oasis (or mirage) that does not exist, so this is not divorced from reality, no matter which type of shared experiences we may have.

In order to confirm Polić’s claims, it would be useful if this type of reality were verified on the basis of a statistical sample (a survey), which would establish how many people have the same illusion at the same spot. If the majority were not to see the oasis or the mirage of an oasis, then this would lead to the assumption that this reality does not exist, thereby also confirming that the reality, the conventional reality of the man in the desert, does not exist either. This ambiguity, or multiple meaning, is also confirmed by Mach’s example of the slanting pencil submerged in water, creating an optical illusion that defies the logic of what we expect to see. We are even prepared to confuse this actual reality with “conceptions of reality”, as a result of which we accept our conceptions and symbols as being a part of reality [9].

If we do not insist on precision, then we can only talk about the reality created by our senses. We know that even conventional space is inhabited by virtual beings (witches). Or, seen from a religious viewpoint, human beings in conventional space can be influenced, or their behaviour can be predicted, depending on commands received from virtual space.

According to Bergson [5], multiple meaning in reality springs from the complexity of man’s individuality, which is caused by the ability of cells in the
organism to merge and separate. This would presume that it is possible to
dislocate from a personal existence and that other individuals in the same
personalism have a frame (work) for their return (p. 7).

An architect in the process of designing is able to dislocate himself from his
personal existence and finds himself in an ecstatic state intermingled with a real
sense of fear about not being able to return, which may even lead to a
schizophrenic state. It is always possible to keep the framework in mind, or it is
predictable, because anything new is always simply a reorganisation of old
elements due to the inertia of the spirit.

Cache [6] subscribes to a conventional reality, which generally amounts to the
shape of vector types that carry the living meaning to vital points of the physical
structure of a city in combination with the configuration of the terrain in a city.
He, therefore, differentiates between real-weight vectors and abstract-space
vectors (p. 23). Although he eliminates the influence of genius loci, he does not
have recourse to apply vectors of shapes readily supplied by and produced in
nature. Emigrants from Dalmatia (Croatia) recognise the same space – the
ambient of San Pedro, California (USA) and rediscover a reflection of the
essential qualities of their earlier lifestyle. This, then, may be what Bergson
means by a possible separability of personalism (the emigrant has left a part of
himself in his first homeland), but also what is implied by Cache when he talks
about the separability of the physical from the abstract vector, in spite of his
views on inflection.

One might dispute the assumption that it is in the nature of the human spirit to
recognise greater order, physical and atmospheric similarities for objects in its
environment than can be found in nature. Similarities are always imbued with
imagination that is grounded in similarity-reciprocity. Screams of fear are
spontaneous signs of fear, but are not analogous to fear itself. This [14] is why it
would better to use the term affinity. After all, how can a representation of
virtual space be viewed without prior experience, and all prior experiences are
derived from these realities. Not even the “babble of similarity” can offer the
imagination a retreat into the turbidity of interrelated emptiness.

2 The rise of a new virtual era

In both virtual and non-virtual space (inverted derivative) the architect, at least in
the initial phase of developing an idea, resorts to using a drawing, while all those
who use words as a medium needs must translate their thoughts. Words provide
but a thin layer and have to increase a thought twofold very much like a façade
([14], p. 94). In view of this, it is more difficult to follow the line of thought
during the process of creation, as it does not evolve successively, whereas what
is finally expressed in words does.

Baudrillard [3] raises the alarm because of the disappearance of objects and
belongings so that virtuality is used to represent a mediated truth of objectivity
and authenticity. This marks the advent of a new reality for man. Nothing
depends on man any longer, it depends on DNA. Čatić [10] warns that
nanotechnology has reached the bounds of the physical world. New theories (the
Selfish Gene Theory) set forth the thesis that genes sustain the human race for the purpose of their own survival [15], so that the sum total of all molecules cannot express spirituality or emotionality. If the human body [16] is only a machine for the survival of genes, then, efficient medical researches necessitate the employment of a variety of machine applications, like computer tomography and magnetic resonance. One should begin to liberate oneself from the misconception that man has a heart and soul [1].

Recent city surveys and plans, whether they represent the entire city or only parts of it, are fragmented pieces, a network of warped surfaces, transparent disjointed or connected structures, stick-like columns of varying shapes made up of a multitude of different material, with larva-like membranes (for now beaches only have sanitary installations), with modular or non-modular, reversible or irreversible structures, etc. The surfaces have a twisted, Escheresque quality to them in the form of a Möbius strip, negating the interior and exterior or inevitably converging as a vortex without a point of departure, but also without a construction of recursive functions.

Pictures are made by using synthetic colours and digital lipstick (M.Troy). New terms are being adopted, like: trans-architecture, trans-modern, trans-culture, but with an underlying reference to virtual reality. Everything is verified by mathematically and algorithmically exploring space, so that the decisive element of a vision is mathematical intuition and algorithmic design, which is outside the experiences within Newton’s space. They are created within virtual space defined by axioms, and graphically represented by lamina, and arranged in a series of ideal surfaces [20].

Information becomes a global resource and changes applicable space into information space [23]. The interplay between the virtual and the applicable creates an amalgam of intelligent houses woven from of a net of optical fibres and communication systems.

3 Presence and the tools of illusion(ism)

J. Rajchman [22] starts his discussion on the virtual house by implying that we are switching from a Bauhaus aesthetics of geometrical abstraction to an electronic aesthetics of “free” abstraction. The virtual house does not resemble anything that we know or can see. In view of this, the search for infinite complexity is, in some ways, a type of virtuality in the form of pure fantasy. It is not just a “possibility” of something that can be “realised” but is real and does not have a representational or mimetic relationship with what it actualises. This is of very little significance for architects, if anything, they have to relate to a potential reality, even if it is only utopian space. There is no other way to discuss a house generally, even when discussing a virtual house. Mentioning only virtual space, but not the house, is too indefinite, no matter how literal and not reflective this may be. I.H.Bergson believes that virtual geometry degrades logic [5]. However, Rajchman is aware of the dangers of using a computer when designing or planning, since this may lead to a loss of perception of the scale of architectonic and urban space, unlike designs drawn by hand. Part of this
complex problem is due to the size of the picture produced and the possibility of superimposing groundplan solutions for various floors. The architect’s primarily task is to anticipate a house, which presumes that you do not first build a house in order to establish its values, and then, should they be faulty, pull it down.

If there is no perception within a vacuum, then there is no vision outside the vision itself. How can we send out a message and communicate if we do not share similar or identical experiences? The real world is but a fluctuating bundle of sensations, where the conventional division into reality and illusion cannot apply. Objective reality exists, but as an independent phenomenon, whereas the actual manifestation of reality is a product of our senses. Bachelard [2] wrote: “Je suis l’espace ou je suis” (I am the space where I am).

The problem of visualisation is an ever-present problem as there is always a discrepancy between the plan and design of a house and the constructed house. An architect cannot be the photographer of a potential reality, especially not in utopian visions, if he has not first seen the future as a literal picture, but only as an ideal. The destruction of this classical urban model led to the advent of new “rod-like urban design” models. A house now has more façades. The concept of space is futuristic and the psychology of perception is that of P. Modrian. It can only be perceived as a whole if we walk around adding up all of its façades. This has led to the introduction of a new topic - the dimension of time, which led to numerous discussions (Poincaré) on chronophotographic space. No matter how you view it, the initial design or plan was always a substitute for a multidimensional reality. To present the designs of their houses, Le Corbusier, F. L. Wright, O. Wagner, and others used a model of wire geometry which was then arranged on a descriptive construction imitating the central (frontal), bicocular and polyocular perspective. The designs of F. L. Wright confirm this in particular; the construction emerges from the groundplan, the foundations are arranged in perspective as proof of their validity. (Edward H. Dohney Ranch, Sierra Madre Mountains, California, 1921., and Charles Ennis House, Los Angeles, California, 1924.)

Le Corbusier believed that the groundplan was the most important contribution for a definition of modern architecture -“plan générateur”, as there should be no original assumption. The starting point is a blank sheet of paper. A cross-section view is important when designing a house on sloping ground, whereas the façade is easy to imagine, which is why it was the basis for all naïve, inverse axonometric projections and drawings of medieval towns. According to E. Bacon, these were more projections than the groundplan of an existing city, which had an organic structure and was built on sloping ground.

Be that as it may, the tools of illusion have been used since ancient times to achieve perspective and up until today in computer simulations. Horizontal and vertical lines are arbitrarily defined and Euclid’s postulates are no longer valid. A line is the product of man’s mind and cannot be touched, felt, smelt or tasted. If we try, we only end up getting our hands dirty. Therefore the rightful place for planning and design is in some imaginary architect’s office. There is truth that can be demonstrated, but also conventional truth. (verticals in perspective projections, convergence of two planes...).
4 Concepts of space and their pertinent dimensions

Although Cartesian space is defined by a symmetrical geometrical grid, and Descartes’s matrix presumes a three-dimensional expansion of physical reality, these matrices stand in opposition to others in which space is not a general marker of objects and is not founded on data from sensory perception. Space belongs [24] primarily to the realm of thought (Kant) and ideas are first and foremost and, not the experienced object. It is the essence of space and “the dialogue of the spirit with its environment” (Vischer).

Material forms, and not space itself, are the essential elements of architecture (Wölflin). Or, thought, spirit and emotions, are what is important (H. Sögel). Schumacher strongly advocates the importance of spirituality and believes that optical perception is only one of the aspects for identifying space. Motor and tactile perception are important, but everything is governed by invisible stimulation and mystical powers that vibrate through the air, and which can only be registered by nerve endings on the skin. The essence of a spiritual foundation disputes perspective in space, according to which the world is finite (Newton). Space is a field, and not an “empty space” and depends on three dimensions of space and one of time.

When discussing the topic of space, one should be aware of the fact that it goes hand in hand with the topic of dimensions in space, especially when applied to an orthogonal geometrical grid like a matrix. This element is assigned a magical quality because it denotes a transition from a potential reality to architectonic magnitudes regardless of heuristic and nominal dimensions [17]. The grid-like pattern of a picture [8] on television also applies to architecture. We do not necessarily see a grid, just as we do not hear the ticking of a clock when we choose to ignore it. An architect sees in pictures, so the grid-like pattern disappears the closer he is to a final solution. Within the same operation, even in virtual space, it is essential for man to have a sense of orientation which means that two systems of reference should be employed: a visual key and a cognitive map. These maps are not so much cartographical as they are diagrammic. When these are linked to man’s lifelong experience they become bio-grammes, which cannot really be defined by space and time, but in an abstract manner. Every space must be drawn in, no matter whether it is real or virtual. Some will read it literally, others reflectively. The former are searching for a vision and needs must be rational as they are aware of the physical qualities of a material, the stability of form, the populousness of space, and architects use a façade as a dividing screen between the interior and exterior. The latter are interested in the idea – the concept of a diversity of shapes, a tension of foam-like quality immersed in a fluid space, puzzles and dream visions. In the former case, dimensions are empirical; in the latter case, they are transcendental or metadimensional. The former accepts form, whereas the latter generates it.

As Peter Eisenman himself states, the Bio-Centre Project in Frankfurt am Main [13] was created through the application of a scientific method. Traditional architecture with its system of spatial hierarchies should be discarded because they are rigid and bar the way to the possibility of a house's further growth.
Eisenman [25] wishes to explore other formal options that open up between biology and architecture. Since traditional biology differs from biology today, so its architecture needs to be divorced from traditional architecture. By abandoning Euclid’s geometry and accepting fractal geometry and its dimensions, the form of an architect’s house almost resembles the geometrical structure of DNA, that is, its inventory of shapes is closer to virtual architecture.

If one accepts that the virtual lies in the realm of the potential, then our bodies do not need to travel, only our thoughts do. To start with, machines would then be able to create new spaces for body and mind. The extent to which they influence architecture still remains open to discussion and is, as yet, hypothetical. If chips were to create invisible cities, then the following assumption by I.Calvino [7] would be feasible “…a lie resides not in the words, but in the objects themselves”. Without a vision and supported only by words, there is no communication. Those who offer visions in the form of words must share the same or a similar experience with those who receive the vision.

On the other hand, a virtual house may perhaps mean a house on a screen in congruence with the paradigm we use when discussing virtual libraries, museums or shopping malls [22]. Architecture is not framed by walls; on the contrary, they hover like information on a screen, which would mean that an unreal picture of reality has been created “…a disembodied mind linked up to all the others in a virtual realm” (Ibid, p. 171).

R. Carpenter believes that the term virtual can be understood as meaning non-spatial, a term for “pure ex-territoriality”, but ostensibly each point of the virtual can, but need not, be linked to a point in real space. What interests architects most is whether a system of repetition integrates architecture or architectonic form within the time structure, no matter whether literally or figuratively. In such a case, architecture would be a framework for past and future experiences, that is, it would need to have a plural dimension, and those dimensions would then digitally refashion architecture.

Virtuality has finally liberated itself from Alberti’s perspective, but also from all that is specific to a house. Interfusion and diversity of application is best proffered by an empty house, so that a virtual “groundplan” is neither ideal, nor impossible. “Even Leibniz’s best of all possible worlds is not a perfect world, but a world with the most virtuality” ([5], p. 175).

One may optimistically conclude that, in spite of everything, it is impossible to design such a house, so there is no reason to surrender to despair and uncertainty.

5 The beginnings of constructing a virtual house

Only one technical equipment has developed, safety features are able to guarantee increased comfort, solar systems can be controlled, better materials have been discovered, the climatic conditions in a house can be controlled and lights can be switched on and off with the help of sensors that react to human body temperature can serious thought be given to the building an "intelligent" or "smart" house. This would increase the quality of life for senior citizens and
those who live on their own. A computer would control heating and conditioning systems, the functioning of the refrigerator and oven and would be mobile-phone activated. A more sophisticated system would be able to produce a breeze or a hurricane force wind, so that we would be able to lie back on the bed in our bedroom and watch the artificial dynamic interplay of light reflected off the water’s surface of a pool in front of our living room and onto our ceiling. The artificially produced wind would blow through the curtains, causing an artificial draught that would slam doors shut. The only real example of a house that includes this anticipated virtuality [18] is that by J. Nouvel (Institut du Monde Arabe, in Paris, 1987). The building site of the Helsinki Virtual Village is in the suburbs of Helsinki and the plan is to have a wireless community. It should confirm the latest achievements in the information revolution with trite phrases uttered in reference to the metamorphosis of architecture and urbanism. This has already been done in the Italian village of Colletta di Castelbianco, which has been preserved intact, renovated and networked under the supervision of the architect Giancarlo de Carla. Some architects who are immersed in virtual reality tend to separate it into unit-based systems which they find in the “data supermarket”. They are not interested in the changing form and possible picture, but in the idea of fragmenting form within space, which can then, in one particular moment of time, be realised as a para-hologram light projection. The user is linked up to an interactive environment, so that computerised live transmissions are sent out of the pictures and thoughts of the man as he builds “intelligent architecture”. A complex house such as this with sophisticated, state-of-the-art software will only be able to house (super) intelligent beings and not people with the physiological and intellectual characteristics and capacities of modern man.

When discussing the virtual, one is filled with a mixed sense of enthusiasm and fear in view of the development of future branches of technology. This has always given rise to the same dilemma: should marginal possibilities be discarded or suppressed and kept far away from any ethical means of authentication? Or should we accept the ethical guide suggested by E. Drexler [12]?

6 The identity of genius loci and home

If form is characteristic trait of space, but also goes beyond it in its own perfection, then it surpasses not only time, but also our mental picture of an interior. This is why it is thought that a space that is being used accepts any type of form, whereas virtual space surpasses it, no matter when it comes into existence. Even when discussing the interpretation of an exterior space that is being utilised, Cache allows for virtuality by reducing it to abstract vector space, that is, to transience. The identity of a place, an important topic when discussing virtual space, is not an inherent trait that man can accept on a permanent basis. What is important is the permanent inter-space between cause and effect. Reality should always be a hollow picture because of possible unexpected events. More often than not, the truth is defined in correlation to the relationship between what
is true and what is false, and not to the relationship between actual applied and virtual space.

“Surfaces of changing curvature are created through automated processes by digital machines” ([6], p. 158). Therefore, there is no indefinitely permanent place created according to preconditioned assumptions, as advocated by Ch. Norberg-Schulz [19].

A place becomes sustainable only when we learn to recognise what can open it up to the new, and not what it is or was. In order to define place, architecture has to satisfy the following three basic images: situation (orthographic map), vector sketch (curvature diagram) and geometrical figures (cone, dihedral, prism, plane), which will form the landscape of any urban composition. The world is no longer a quiet, fenced-in swimming pool filled with water, but the turbulent surface of a running stream that meanders to and fro. Time does not flow, it hesitates, and so the whole of society is turning into a nomadic tribe.

When discussing the spirit of a place [11], one should also mention the importance of feeling at home, which has a marked complexity and multiplicity to it. It is important to mention the following points: the anthropological (with emphasis on the existential dimension), the topofilial (which relates to Bachelard’s understanding of space as a place of human warmth and memories) the structural (like the grid of points of a homeland) and the motivational and semantic (the influence of a community on the creation of the referential homeland topos). In a time of change and with a nomadic populace, virtual space, in the Kantian sense, will become devoid of a starry sky above it and lacking moral principles.

7 Man in virtual space

In their work, architects are faced with the interplay of science and technology, even though they use the knowledge of a scientist, whereas scientists use only tools provided by engineers. Everything focuses around which kind of shape and needs a human being will have, and consequently what kind of housing for work and recreation he will want. Evolutionary changes as such are not a primary concern for architects, that is, not until a borderline situation is created between a living being and a machine, especially when newly produced replicators start depending on natural laws. If material production decides on the physiological characteristics of this replicator, then the space will have to be defined without the application of natural laws. This will signify a vital change, followed by the complete disappearance of architects of a profession, which is what has already happened to certain profession in the past.

In all of these deliberations man is only mentioned indirectly. Does this mean that places of hedonistic melancholy and cheerful fatalism [26] will disappear forever? If it is difficult for man to cope with the truth, then he should learn to live with illusions. A new “body space” needs to be created.

This is something that architects find difficult to predict because even in the past they were not able to predict the organisation and appearance of such (groups of) cities in the future. This was done by poets (Marinetti, Mayakovski,
Appolinaire) and painters in their manifests-proclamations in an attempt to find the effusions of the spirit’s aspiration towards a new age. Immersed in architectonic form, architects were unable to discard potential realities.

What is confusing is that the closest idea, vision of the geometry of this new space was provided by the Expressionists, in particular a group that committed itself to anthropomorphic expression, like Finsterlin (Dream in Glass), Mendelshon (Musical Sketches), Wijdeveld (Vondel Park), Kiesler (Endless House), and others. Their paintings did not have the lasciviousness of a virtualist, but even without using coloristic diagrams they managed to offer fluidity and freedom of space. In the 1920s Kiesler talked about the infinite dimension of the human body.

Until the production of replicators is complete, in the sense already mentioned, modern man, with the physiological characteristics he has today, will travel the world with the help of optical cables. He will remain in one place while his senses travel. No matter how much electronic technology may extend his central nervous system, this cannot replace the archetypal structure of a house with an archetypal informational solution. The information column cannot help.

8 Afterword

Borderline situations between what is possible and impossible, that is, some kind of indication of natural laws, should be explored or established. All natural laws are valid as long as the law of gravity applies and the sun continues to rise in the same place every morning. It is possible to imagine that some other type of nature can be created, in which the present laws would be either completely or partly unnatural and which would be populated by another species of man, if you can call it that. This would imply that houses and cities would also be completely different.

Maybe this is not necessary.

Baudrillard believes that fantasy is the capturing of a living reality – very much in the same fashion in which Narcissus captured it. Even in this type of nature man has created something that is almost undemonstrable: “You bend over a hologram like God over his creation: only God has the power to walk through walls, through all living things and to find himself in the beyond, on the other side”, in the form of immaterial matter ([3], p. 151). Man has acquired divine capabilities and qualities. However, this is but a temporary victory of the media over nature.

References